DOCUMENT RESUME

ED 121 051 EC 082 840

AUTHOR	Sie, Maureen A.; And Others
TITLE	An Educational Alternative for Special Education.
INSTITUTION	Macomb County Intermediate School District, Mount Clemens, Mich.
PUB DATE	Apr 76
NOTE	58p.; Paper presented at the 1976 meeting of the American Education Research Association (San Francisco, California, Session 28.12)
EDRS PRICE	MF-$0.83 HC-$3.50 Plus Postage
DESCRIPTORS	Camping; Elementary Secondary Education; Exceptional Child Education; *Handicapped Children; Inservice Teacher Education; *Outdoor Education; *Program Descriptions; *Program Evaluation; *Testing

ABSTRACT

Described is a 4-year project which provides 3-day outdoor education experiences for orthopedically handicapped, trainable and educable mentally handicapped, hearing impaired, and physically impaired students from 3 to 24 years of age. The following program objectives are described: (1) to improve achievement in regular school subjects, self concepts, interpersonal relationships, and leisure skills; (2) to train special education teachers in outdoor education skills; (3) to test an outdoor education model with handicapped children; and (4) to educate and involve parents of handicapped children. The project is reported to have developed a handbook on outdoor education dealing with daily living skills, arithmetic, science, social studies, language arts, music, and physical education. Results of program evaluation after the third year are reported to show the teacher training component to be highly successful, the learning sessions for the various handicapped groups to meet the stated objectives, and statistically significant gains in basic concepts for the trainables in the experimental group. Appended are an instrument for the teacher workshop on outdoor education, teacher made camp tests for each exceptionality, and instruments to evaluate affective and psychomotor domains. (Author/DB)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED121051

AN EDUCATIONAL ALTERNATIVE FOR SPECIAL EDUCATION

by

Maureen A. Sie
Donald R. Marcotte
Wayne State University
Detroit, Michigan
Kristy Bott
Macomb Intermediate School District
Mt. Clemens, Michigan

Presented at the American Educational Research Association
Annual Convention
San Francisco, April, 1976

EC082840

Introduction

A special education project in the Macomb Intermediate School District demonstrated that outdoor education is a promising educational alternative for special education students. The program was designed to serve emotionally, mentally and physically handicapped students residing in Macomb county which is located approximately twenty miles north of the city of Detroit.

The project was funded in 1971 under Title III, Elementary and Secondary Education Act (ESEA), and is presently in its fourth year of operation. The project was experimental in nature for the first three years; it was changed to a demonstration project after it had been validated in 1973 by the Michigan Department of Education. It has been funded by the state for school year 1975-76 and school year 1976-77 as a demonstration center for exemplary and innovative programs.

The major objectives of the program are as follows: 1) to improve handicapped youngsters' achievement in regular school subjects, their self concepts, interpersonal relationships and leisure skills; 2) to train special education teachers in the utilization of the outdoors for providing learning opportunities to handicapped children; 3) to test an outdoor education model for improving the learning and lives of handicapped youngsters; and 4) to educate and involve parents in the education of handicapped children.

The basic curriculum was designed to meet the special needs of all types of handicapped children through teacher in-service training and alternative learning programs. In establishing an outdoor education model, the project over the past four years utilized extensively community resources, enlisted help from parents of handicapped children, special education teachers, high school students, university researchers and curriculum specialists, state department of education curriculum specialists, and experts in the field of special education and outdoor education from all over the country.

The program developed and implemented a variety of outdoor education workshops for teachers, parents and student aides. It provided for handicapped students learning experiences in outdoor settings including resident outdoor school experiences where special education students and teachers learned and lived together.

The project was evaluated by Macomb Intermediate School District research personnel during the first two years of its operation. At the end of the second year, the project contracted external evaluators from Wayne State University to conduct a comprehensive evaluation of the program. The results of the two-year evaluation study are presented in the evaluation section of this paper.

The laboratory sessions held during school year 1973-74 involved over 1,000 orthopedic, trainable, educable mentally

impaired, hearing impaired and physically impaired students. The program achieved its objectives through the implementation of instructional programs in naturalistic settings. For each specific group of special education students, instructional materials and appropriate measuring instruments were developed, implemented and evaluated. Several in-service training programs for special education teachers in the county and the state were highly successful as evidenced by the evaluation results.

In September 1973, two groups of 45 trainables were randomly selected to serve as the experimental and control groups. The experimental group received instruction in outdoor education throughout the school year, whereas the control group received no treatment. All students were pretested in September 1973 and posttested in May 1974 by the Peabody Individual Achievement Test, The Boehm Test of Basic Concepts, and six criterion-referenced achievement tests constructed by classroom teachers. These criterion-referenced achievement tests were based on specific objectives of the various learning session. The in-service training workshops were also evaluated by criterion-referenced instruments constructed by university experts in specific fields. All workshop participants were pretested and posttested at the beginning and conclusion of each workshop.

The students were tested again using a pre- and posttest design in October 1974 and June 1975. Teacher made criterion-referenced tests were used as the measuring instruments.

Since structured and unstructured classroom activities

were held in a naturalistic setting whereby children were made aware of new stimuli and the immediate world around them, the activities represent an integration of cognitive, affective and psychomotor aspects of learning. Consequently, the evaluation of school year 1975-76 focused on the affective domain. Two groups of mentally impaired students ranging in ages from 20 to 25 were selected as the experimental and replication groups. They were measured by trained raters on four affective objectives which represent essentially self-help skills necessary for the trainable mentally impaired students to be able to function independently in society.

The systematic evaluation of project activities and program objectives and the collection of curricular materials, achievement tests, and other related information on the education of special education students resulted in a comprehensive handbook on outdoor education for special education students. The handbook presents the history and philosophy of outdoor education, the "how to" aspects of outdoor laboratory sessions, and instructional programs in the subject areas of arithmetic science, social studies, language arts, music, physical education, and arts and crafts. Several sections of the handbook were devoted to fire, hikes and scavenger hunts, rainy day activities, winter activities, winter art and miscellaneous activities designed to meet the specific needs of various groups of special education students.

The educational and scientific importance of the study lies in its uniqueness and its demonstrated success in

improving the cognitive and affective growth of special education students. The program offers a different approach in the field of special education. The program successfully demonstrated that alternative ways were more effective in providing special education students the necessary skills for daily living as well as attaining some of the basic cognitive skills necessary for adequate functioning in today's society.

The handbook, accompanied by four filmstrips and cassettes provide a wealth of information dealing with educational programs for various types of handicapped students. The first filmstrip and cassette combination is general in nature and dealing with the philosophy of outdoor education. The second and third filmstrips and cassettes focus on the "how to" aspects of outdoor laboratory sessions. The fourth filmstrip and cassette centers on the specifics of preparation and follow through when working with impaired children. The materials contained in the handbook are reported in a subsequent section of this paper under the heading of curriculum.

The handbook and its related materials are available to interested readers from the Macomb Intermediate School District both on a "free" and "cost" basis.

Evaluation

During the school year 1973-74, all workshops and laboratory sessions conducted by project staff were evaluated utilizing either standardized achievement tests or criterion-referenced measures. The project was evaluated in light of the four specific objectives of the third year. The objectives are as follows:

Objectives No. 1 and No. 2 -

The project will provide in-service training and staff development in outdoor education for the special education teachers of Macomb County so they may gain knowledge of teaching in the out-of-doors. From July, 1973 through June, 1974, a minimum of eight workshops one day to two weeks in length, will be held in which the special education teacher's behavior will be measured by 1) the instructor's assessment, 2) a task check list and 3) teacher log book. Success will be determined by the instructor and 90% or better attendance on an hourly basis.
Provide in-service training and staff development in outdoor education for the special education teachers of Macomb County so they may apply outdoor education techniques with their own classes attending residential outdoor laboratories for the length of three to five days. From July, 1973 through June, 1974, the teachers will keep a daily activity log and a task check list. Success will be determined by the successful completion of all relevant items on the task check list.

Objectives No. 3 and No. 4 -

From July, 1973 through June, 1974, teachers trained in outdoor education will provide reading and arithmetic instruction three days per month for a period of eight months in a residential laboratory that will supplement the conventional classroom instruction. This reading and arithmetic instruction will be given related to the ongoing out-of-doors experiences for two classes of elementary mentally impaired students. The students will gain knowledge in reading and arithmetic. Using the Peabody individual Achievement Test, the mean gain of the students attending the outdoor laboratories will be statistically greater than the mean gain of a control score for the experimental students on teacher-constructed tests.

The systematic evaluation of school year 1973-74 resulted in a massive array of statistics illustrating the success of the project and providing justification of continued support from the Michigan Department of Education. The evaluation study also made a significant contribution in the improvement of instructional objectives and curricular content.

The scope of this paper precludes a complete presentation of the evaluation results, therefore, only a portion of the evaluation study is included in this paper.

A ten-week workshop (Jan. 7 - Mar. 11, 1974) was conducted by the project staff in collaboration with Michigan State University. A total of twenty-two educators participated in this in-service training workshop; the participants comprised two consultants, ten regular classroom teachers and ten special education teachers. All participants were pretested and posttested on a 14-item instrument with a total possible score of 96 (Appendix A). The results are shown in Table 1 below. The workshop was highly successful in increasing teachers' knowledge and understanding of theory and skills in outdoor education.

Table 1

Pretest and posttest results of workshop on the theory of outdoor education and skills

	N	MEAN	S.D.	t
Pretest	22	35.43	24.82	11.61**
Posttest	22	94.26	8.64	

** $p < .001$

Peters School - Trainables

Ten laboratory learning sessions of three-day duration each were held from February through May of 1974 for eleven groups of students ranging from ages 3.5 to 24. The general I.Q. range was approximately 30-50. The groups were composed of 98 male and female students and eleven teachers.

Topics of these sessions were focused on winter camping, first aid skills, safety rules, cooking, environmental awareness and basic skills for daily living. Each workshop session was evaluated by teacher-made criterion-referenced measures. The pretest and posttest data are presented in Table 2. The laboratory experience provided each student with the opportunity to spend time away from home. Students were exposed to new environments and taught to adapt to new surroundings. They learned the necessary skills in order to become more self-reliant and less dependent on members of their immediate families. The results clearly indicated that when the objectives are specific and appropriate in meeting individual needs, the severely mentally impaired youngsters could be helped to increase their awareness of their environment.

Table 2

Comparisons of means and standard deviations and correlated t-tests of trainable mentally retarded students in outdoor educational laboratory sessions

Session No.	df	Mean (pretest posttest)	Std. Dev. (pretest posttest)	t
I	17	6.83 9.44	1.65 1.04	6.71**
II	10	6.55 8.45	2.11 3.14	2.49*
III	8	2.67 5.78	1.80 2.33	10.06**
IV	7	4.00 7.75	2.07 1.39	3.77**
V	8	1.89 2.56	.93 .73	2.83**
VI	9	5.90 9.40	2.69 1.51	4.98**
VII	10	4.36 5.09	1.21 .94	1.79*
VIII	12	6.00 11.85	2.52 3.31	17.36**
IX	9	9.70 12.70	2.75 2.50	4.29**
X	8	19.22 23.33	4.47 2.01	4.03**

*$p < .05$
**$p < .01$

In an attempt to assess the overall effect of the program on the trainables, two standardized instruments were used. The Boehm Test of Basic Concepts (BTBC) is basically an aptitude test which consists of fifty items. The test was designed for kindergarten, first and second grade students.

The Peabody Individual Achievement Test (TIAT), which generally serves as a screening device in measuring achievement in the areas of mathematics, reading, spelling, and general information was used. Students in both experimental and control groups failed the reading comprehension subtest. On the average, students (11-15 years of age) in both groups functioned at about the middle of the first grade level. The results are shown in Tables 3 and 4.

Students in both groups made statistically significant gain in reading and arithmetic as measured by the PIAT and in general aptitude as measured by the BTBC. The experimental group made greater gains than the control group as measured by the BTBC. There was no difference in reading and arithmetic achievement between the two groups as measured by the PIAT. Evidence seemed to support the fact that the standardized achievement test is inappropriate when administered to special education students classified as trainables.

In sum, the project was successful in achieving its objectives in the area of in-service training for teachers. This was evidenced by the test results, attendance record, and records and logbooks maintained by the teachers and the project staff.

Table 3

COMPARISON OF EXPERIMENTAL AND CONTROL GROUPS USING STUDENT'S t-TEST

Variable	df	$\bar{X}$	s^2	t	F[a]
Boehm - Pretest	42			-0.17	1.48
Experimental		23.73	95.54		
		24.18	64.44		
Boehm - Posttest	42			2.94**	0.32
Experimental		36.41	75.87		
		29.05	62.05		
PIAT - Pretest	43			-0.27	1.53
Experimental		42.91	221.54		
		44.27	340.02		
PIAT - Posttest	43			-0.33	1.10
Experimental		48.22	403.91		
		50.14	367.36		

[a]Test of Variances

**$p < .01$

Table 4

ANALYSIS OF GAINS FOR THE EXPERIMENTAL AND CONTROL GROUPS

Variable	df	$\bar{X}$	s	t
Experimental				
Boehm	21	12.68	11.46	5.19**
PIAT	22	5.30	9.76	2.61*
Control				
Boehm	21	4.86	4.54	5.03**
PIAT	21	5.86	10.16	2.71*
Experimental vs Control				
Boehm[a]	28			2.97**
PIAT	43			-0.19

[a]Variances significant at $p < .01$, therefore approximate degrees of freedom used.

*$p < .05$

**$p < .01$

Handicapped students in both experimental and control groups made statistically significant gains in reading and arithmetic. In the area of general aptitude, the experimental group made statistically significant gains than the control group as measured by BTBC.

The experimental group also made statistically significant gains in achievement in the various laboratory sessions as measured by teacher-made instruments.

It cannot be stated that the experimental group did better than the control group in terms of reading and arithmetic achievement. In other words, the mean gain of the students attending the outdoor laboratories was not statistically greater than the mean gain achieved by the control group. Thus, the outdoor education experience did not have any impact on student achievement in the traditional sense. Taking into consideration the aptitude of these students, aiming for school achievement as expected of normally progressing students seems to be of little practical value.

Evidence seems to support the fact that outdoor education for mentally or physically impaired students provides a viable means by which students can develop a more positive outlook about their environment and become more aware of nature and surrounding objects. By living away from homes, students can become less dependent on others and more self-reliant in meeting their own daily needs.

The evaluation results pinpointed a number of areas which require attention by the teachers so that these special

education children can acquire the essential basic skills in meeting their daily needs. Evaluation of students' ability in acquiring these skills rather than school achievement in certain subject matters should be the major point of emphasis. Some measure of self-concept can also add an important dimension to the evaluation study.

An item analysis of the criterion-referenced tests revealed that most of the objectives need to be revised. Some of the objectives can be discarded and many CRT's can be combined to form more comprehensive measures which can be used to measure similar types of students.

It was felt that there should be more involvement of parents who in turn can reinforce the daily living skills acquired in the learning laboratories and which are essential in order for their children to function as independent and self-reliant individuals in society.

The project underwent a transitional phase from experimental to demonstration category beginning SY 1974-75. Twenty-one groups of handicapped children including trainable, educable and severely mentally impaired, learning disabled, orthopedic and emotionally disturbed participated in the project during the period Oct. 1974 to June 1975. The major activities involved measuring concepts, art lessons and concepts of time and space utilizing objects collected outdoors. In addition, children were expected to: 1) share chores at the camp, 2) participate in group activities such as art projects, group singing, nature

walks, etc. and 3) develop self-reliance and psychomotor skills. Altogether twenty groups were pre- and posttested and, with the exception of the severely mentally impaired, these results appear in Tables 5 and 6. It can be seen from Table 6 that nineteen of the reported twenty groups attending the sessions for the first time made statistically signficant gains as measured by teacher-made tests (Appendices B1-B20). Although there was an achievement for the remaining group, it was not significant at the .05 level which might be due, in part, to the limited number of questions on the test.

A separate analysis was made of the trainably mentally impaired group for two reasons: 1) the group had attended the outdoors laboratory in previous years and 2) the group was considerably different than the others listed in Tables 5 and 6.

The mentally impaired group, consisting of twenty-three children, were introduced to a weather station, performed experiments, discussed results and developed workbooks. The second unit was on ecology where trees and animals were classified, observed, collected and discussed.

For both units none of the children were able to answer any of the questions on pretesting; however, on the posttests there was not one question that was not answered correctly by at least one of the children. Because of the lack of variability in the pretesting, no statistical test was used. The tests used for this group appear in Appendix C.

TABLE 5

MEANS, STANDARD DEVIATIONS AND RANGES

BY GROUP FOR PRETEST AND POSTTEST

Group (Impairment)	N	Total No. of Points	Pretest			Posttest		
			$\bar{X}$	S	Range	$\bar{X}$	S	Range
Educable	19	10	7.3	1.5	4-9	9.4	0.9	7-10
Learning Disabled	8	10	1.9	1.6	0-5	7.3	2.3	3-10
Orthopedic	22	16	13.3	2.4	8-16	14.9	1.5	11-16
Trainable	14	11	6.7	2.0	3-10	9.9	1.6	7-11
Orthopedic	15	10	3.6	2.1	0-7	7.1	2.9	1-10
Educable	65	10	2.8	1.6	0-7	6.8	1.7	3-10
Trainable	12	12	8.5	2.5	5-11	10.2	1.6	7-12
Educable	12	37	17.8	2.8	13-22	30.8	5.7	21-37
Learning Disabled	8	100	44.4	15.9	20-70	88.1	12.8	70-100
Learning Disabled	7	100	39.1	19.8	25-82	83.6	9.4	70-100
Emotionally Disturbed	7	41	25.4	2.3	22-29	37.9	1.5	36-40
Educable	21	9	4.5	1.9	1-8	6.7	1.6	3-9
Trainable	10	9	4.5	2.3	1-7	7.4	1.4	5-9
Trainable	13	11	7.0	1.8	2-9	9.5	1.8	6-11
*Trainable	11	7	3.0	1.5	1-5	4.2	2.0	1-6
Trainable	12	9	4.7	1.7	2-7	7.5	0.7	6-8
Trainable	9	7	4.6	1.2	2-6	6.1	0.8	5-7
Educable	17	12	2.6	3.0	0-8	9.4	2.2	4-11
Trainable	14	10	4.2	2.0	1-8	7.2	1.5	5-9
Trainable	14	10	5.1	1.5	2-7	7.5	1.5	4-9

*Scores are based on teacher-made tests.

TABLE 6

CORRELATED t-TESTS BY GROUPS*

Group (Impairment)	df	Mean (Gains)	Std. Dev. (Gains)	t
Educable	18	2.1	1.2	8.7***
Learning Disabled	7	5.4	2.1	7.4***
Orthopedic	21	1.6	2.4	3.1***
Trainable	13	3.1	2.7	4.4***
Orthopedic	14	3.5	1.5	9.1***
Educable	64	4.0	1.9	16.8***
Trainable	11	1.7	2.1	2.8**
Educable	11	13.0	3.7	12.0***
Learning Disabled	7	43.8	20.0	6.2***
Learning Disabled	6	44.4	18.6	6.3***
Emotionally Disturbed	6	12.4	2.9	11.2***
Educable	20	2.1	2.1	4.6***
Trainable	9	2.9	2.9	3.1**
Trainable	12	2.5	2.3	4.1***
Trainable	10	1.2	2.6	1.5
Trainable	11	2.8	1.6	6.2***
Trainable	8	1.6	1.4	3.3**
Educable	16	6.7	2.3	12.2***
Trainable	11	3.0	2.7	3.9***
Trainable	13	2.4	1.3	6.6***

* See Table 1 for means and standard deviations for both pretest and posttest.

** $p < .05$

*** $p < .01$

Data presented in Table 6 clearly demonstrated that outdoor laboratory activities were instrumental in helping children learn about their environment. Furthermore, it is noteworthy to point out that the use of teacher made tests is an effective means in looking at achievement since most, if not all, of these children are not able to handle traditional standardized tests used in the schools.

Due to the unique nature of the program and the students served by the program, activities involve the integration of cognitive, affective and psychomotor areas which can better be identified through observational techniques rather than the conventional paper and pencil type of measures.

For the 1975-76 school year, the experimental group consists of 23 trainable mentally impaired students ranging in ages from 20 to 25 and enrolled in the vocational program for trainable mentally impaired students. A similar group of 25 trainables was selected from another school building constituting the replication group. Each group will attend outdoor laboratory sessions six times for three days and two nights per session. Both groups are tested by trained raters from Wayne State University on four affective terminal objectives. Teachers are required to keep logs of length of time spent on exposure to tasks, length of time spent on tasks, the type of cue required to obtain a response to a task, and annotated notes on the progress of each participant at each session. The instruments can be found in Appendix D.

The affective terminal objectives selected are felt to be essential self-help skills necessary for the trainable mentally impaired student to be prepared to live in society with the termination of schooling. The objectives are as follows: 1) student will maintain an orderly living area, 2) student will prepare a simple, single meal in the out-of-doors using buddy burners or foil, 3) student will appropirately dispose of dishes and silverware after eating in the out-of-doors as well as indoors, and 4) student will identify simple sounds in the out-of-doors without visual contact by naming sounds or pointing to picture cards.

When data collection is completed at the end of SY 1975-76, percentages will be used to determine success on each objective and task, and comparisons will be made when data collected warrant such analysis.

The development of the handbook and kit will greatly enhance the project's visibility and viability particularly when the project has been transformed from an experimental to a demonstration center. At the time of this writing there already have been approximately seventy-five requests for materials developed by this project.

The handbook and kit containing filmstrip, cassettes and a script were made available to interested parties during the 1974-75 school year.

The handbook contains forty-three sections dealing with teacher in-service, planning and preparation of laboratory sessions, curricular materials on school related subjects such as arithmetic, science, social studies, language arts, music, and physical education. It also contains information on plants and animals, arts and crafts, camping, and other outdoor and indoor activities. A comprehensive forty-three page annotated bibiliography has been compiled and included in the handbook.

A cursory treatment of the major portions of the handbook is presented in this paper to illustrate the nature and scope of the document. The summary consists of an overview, teacher in-service, curricular materials on school related subjects, plants and animals, arts and crafts, camping, and evaluation instruments.

Overview

The project began in 1971, and has served over 3,000 special education students and their classroom teachers. These children are the blind and visually impaired, deaf and hearing impaired, educable mentally impaired, trainable mentally impaired, day care,

orthopedic, emotionally disturbed and learning disabled students.

The project is based on L.B. Sharp's philosophy: "that which can be learned inside the classroom should be learned there and that which can best be learned outdoors, through direct experience dealing with native materials and life situations, should there be learned."

The purpose of the project is to 1) establish a model program which will improve youngster's achievement in regular school subjects by building their self-concept, interpersonal relationship and leisure skills; 2) train special education teachers to use the outdoors to provide new and varied learning opportunities for impaired children; 3) test an outdoor education model for improving the learning and lives of impaired children; and 5) use high school students as instructor aides for impaired students to the benefit of each.

These goals were achieved by involving parents, special education teachers, and high school students in project planning, implementation and evaluation, and by providing outdoor education workshops for teachers, parents and student aids. These workshops focused on ecological identification, arts and crafts, winter activities, and outdoor cooking.

In addition, special workshops were held for teachers and administrators to help them become more knowledgeable about the concepts of outdoor education through laboratory setting.

From 1971 to 1975, some 100 laboratory sessions were held involving thousands of special education students. These sessions provided new avenues to expand the childrens' educational and

personal experiences by bringing the joys of nature into their lives.

Teacher In-Service

The two-day in-service workshop enables teachers to acquire leadership skills and gain knowledge in skills and concepts of outdoor education. The workshop experience also develops confidence in their ability to teach skills to students as well as acquaint them to natural facilities. The handbook contains detailed information on planning laboratory sessions, the preparation of high school students to be counselors, the identification of naturalistic laboratory settings, schedules, insurance, transportation, first aid and medication rules, camp rules and equipment check list.

Curricular Materials on School Related Subjects

An outdoor laboratory is an exciting place and offers many possibilities for high impact experiences. It is believed that the natural world can function as reinforcement for many of the school related subject matters. The high impact experience affords an opportunity for curriculum integration in a variety of ways. For example, concepts of measure, space, numbers in graphic forms can be taught to special education students by using many natural objects. The naturalistic setting is an ideal place to involve the students in fascintating areas of science study. The students can study soils, plants and animals, weather, stars, and environmental habitats.

Social studies involves the study about interdependence and the struggle for life. The immediate community provides a rich resource for a variety of exciting activities for the study of man and learning about his past.

The out-of-doors is alive with sounds and feelings and therefore is ideally suited for the practice of listening and sharpening of verbal skills through the creating of word pictures. Students learn language arts creatively through poems, stories or merely by jotting down feelings.

Plants and Animals

Trees, plants, and flowers present a constant, interchanging tapestry of color, texture, aromas and at times, tastes that will trigger questions, observations and comments from students whose natural curiosity has been aroused. Trees, plants, and animals are presented in pictorial form and with clear and simple descriptions.

In ecology, students develop a respect for the beauty of land, with its living plants and animals. They learn to cherish their natural resources through direct exposure to the natural wonders of the land.

Arts and Crafts

Through "art" activity, the sense of beauty appreciation and awareness can be enhanced for all students regardless of handicap. Painting, drawing, photography, and weaving can have

a calming effect and will remain with the students for a long period of time.

Geology, lapidary, jewelry, and tin can craft are interesting and sometimes give the students a sense of contributing something.

Use of natural materials by students helps to reinforce information they receive about the natural habitat. Names of trees and plants are retained by the students when these materials are used in producing a product. Activities shared as a group task also reinforce the learning process for the students.

Camping

Campfire is looked upon as pleasant and memorable experience by students who can benefit by learning how to use fire and the dangers involved.

Hiking and scavenger hunts can be equally entertaining and at the same time educationally profitable. Sixteen types of hikes are given with activities and games that match with each type of hike. A wide range of activities and games are illustrated in the handbook dealing with winter activities and rainy day activities in case of inclement weather.

Evaluation Instruments

Teacher made achievement tests are classified for each type of special education student and age range. The difficulty levels of the items vary with respect to the type of training involved (e.g., day training, trainable, educable, or orthopedic

etc.), age level (i.e., 5-9 year old, 10-15 year old, 19-22 year old etc.), and I.Q., (i.e., 9-30 I.Q., 30-50 I.Q., 50-70 I.Q., etc.). The content area covered in the sessions formed the basis of item construction. In addition, group dynamics, individual personal care and social functioning are also considered as aspects of evaluation by the teachers and project staff.

Space does not permit the inclusion here of the rather lengthy annotated bibliography contained in the handbook. Nonetheless, a short list of references is given at the conclusion of this paper.

REFERENCES

Copland, Robert J., and Taylor, Jane L. Outdoor Education Teachers Manual, Haslett Public Schools, Haslett, Michigan.

Donaldson, George W., and Goering, Oswald, Perspectives on Outdoor Education, William C. Brown Company, Publishers, Duburque, Iowa, 1972.

Hug, John W. and Wilson, Phyllis J., Curriculum Enrichment Outdoors. Harper and Row Publishers, Inc, New York, New York, 1965.

McGavack, John, Guppies, Bubbles, and Vibrating Objects, John Day, 1969.

Milliken, Margaret, et. al., Field Study Manual for Outdoor Learning, Burgess, 1968.

Schramm, Wilbur, Classroom Out-of-Doors; Education Through School Camping, Sequoia Press, 1969.

Smith, Julian W., Carlson, Reynold E., Masters, Hugh B. and Donaldson, George W. Outdoor Education, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1963.

Sproul, Adelaide, With a Free Hand = Painting, Drawing Graphics, Ceramics and Sculpture for Children, Reinhold, 1968.

Swan, Malcolm D., edited, Tips and Tricks in Outdoor Education, The Interstate Printers and Publishers, Inc., Danville, Illinois, 1970.

A P P E N D I X A

INSTRUMENT FOR WORKSHOP ON THE NATURE AND SCOPE OF OUTDOOR EDUCATION

APPENDIX A

Name _____

Questions Concerning the Nature and Scope of Outdoor Education

1. The two phases of outdoor education may be described as _____

_____

_____ (10 pts.)

2. Suggest three learning principles that are inherent in outdoor education. (9pts.)

a. _____

b. _____

c. _____

3. To what goals of education do outdoor learning experiences make a major contribution? (6 pts.)

a. _____

b. _____

c. _____

4. Outdoor education makes certain unique contributions to the curriculum. Suggest five of them. (10 pts.)

1. _____

2. _____

3. _____

4. _____

5. _____

5. Outdoor education has potential as a change agent and affects three areas. (9 pts.)

1. _____

2. _____

3. _____

6. What are three of the unique learning experiences in resident outdoor education? (6 pts.)

1. _____

_____

2. _____

_____

3. _____

_____

7. Suggest three teaching techniques that are effective in the outdoors. (9 pts.)

1. _____

2. _____

3. _____

8. What are three unique features of learning in outdoor laboratories as contrasted to classrooms. (6 pts.)

1. _____

_____

2. _____

_____

3. _____

_____

9. The implications of outdoor skills and interests for the effective domain of education are (5pts.) _____

_____

_____

10. Suggest three kinds of outdoor areas that have potential as laboratories for learning. (6 pts.)

1. _____

2. _____

3. _____

11. Check the statements that characterize outdoor education. (10 pts.)

(a) _____Outdoor education is a separate discipline in the school curriculum.

(b) _____Outdoor education is a means of curriculum enrichment.

(c) _____Science education and outdoor education are synonymous.

(d) _____"Education for the Outdoors" refers to teaching manipulative skills for outdoor recreation and outdoor interests.

(e) _____Outdoor education and nature study are synonymous.

12. The law in Michigan pertaining to resident outdoor education permits school districts to (4 pts.) _____

_____

_____

13. Education in the outdoors means (4 pts.) _____

_____

_____

_____

14. What would be three essentials in planning a field trip? (6 pts.)

1. _____

2. _____

3. _____

A P P E N D I X B

TEACHER-MADE INSTRUMENTS

Educable

1. A fire is started by using large logs.
2. On a nature hike it is best to talk with a loud voice.
3. It is important to follow rules while camping.
4. When you go on a hike you should wear long pants and long shirt sleeves.
5. A camp fire must always be put out before leaving it.
6. If you listen carefully you can hear leaves blowing in the wind.
7. All trees look alike.
8. To roast a hotdog you put it on your table fork and hold it over the fire.
9. It is impossible to cook a meal over an open fire.
10. A marked trail is used for getting lost.

Learning Disabled

1. Name the four basic groups used for meal planning.
2. Name one food for each basic group.
3. What are nettles?
4. Which one is the Monarch butterfly? (Select correct one from three pictures.)
5. Where are you likely to see a red-winged blackbird: in the woods, in the swamp and marsh, in your back yard?
6. Name three basic rules about the use of a campfire.
7. Is it a good idea to spray a swamp to kill mosquitoes? Why or why not?
8. Name the one poisonous snake which lives in Southern Michigan where we live.
9. What is this? (maple seed)
10. What is the basic rule of a good camp and hiker?

Orthopedic

1. The 2 main families of trees are _____ and _____.
2. A clock tells us _____.
3. A compass tells us _____.
4. The four food groups help to keep us healthy. True or False
5. Keeping our bodies clean while at camp is important for good health. True or False
6. We should be able to see Bluejays, Robins, Cardinals, and Sparrows at Camp Rotary. True or False
7. The _____ River flows through Camp Rotary.
   a. Huron
   b. Clinton
   c. Raisin
8. Michigan has a seasonal climate, with four seasons for us to enjoy. True or False
9. The Michigan State fish is _____.
10. We use a _____ to observe pond life more closely.
    a. Hand lens
    b. Telescope
    c. Microscope
11. We use a _____ to observe the stars and moon more closely.
    a. Mirror
    b. Telescope
    c. Microscope
12. Water freezes at _____ degrees.
13. _____ are fair weather clouds.
    a. Cumulus
    b. Nimbus
    c. Stratus
14. Why should every day be earth day?
15. Only big business or government can help stop pollution. True or False
16. Fish and plants can live in polluted water. True or False

Trainable

1. Where will we plant seeds?

   a. in the ground (dirt)
   b. in the water
   c. in the sky

2. What color is a leaf?

   a. black
   b. white
   c. green

3. Where do leaves grow (come from)?

   a. clouds
   b. trees and bushes
   c. rocks

4. Where will we find frogs and turtles?

   a. near the water
   b. in the sky
   c. in our cabin

5. Where do fish live?

   a. in trees
   b. in the cabin
   c. in the water

6. Where do birds live?

   a. in the water
   b. in the nest
   c. in the cabin

7. Where will we find birds:

   a. taking a bath
   b. in the trees and sky
   c. hiding in the cabin

8. Where will we find pine cones?

   a. in the water
   b. on pine trees
   c. in a nest

9. If we want to cross the water we will:

   a. use the bridge
   b. swim across
   c. fly across

10. At camp I will sleep in a:

    a. cabin
    b. tent
    c. on the grass

11. Before going to bed I will:

    a. go out side and fool around
    b. brush my teeth and wash up
    c. eat breakfast

Orthopedic

1. Can you name two birds? 1. _____ 2. _____
2. What is our State's bird? _____
3. What do birds use to build their nests? _____
4. Do all birds fly? Yes No
5. What do birds eat? _____
6. What color is a robin? _____
7. Most baby birds come from _____
8. What covers the body of a bird? _____
9. Where do Robins go in the winter? _____

Educable

1. When you get a snake bite you should apply a tourniquet between the _____ and _____

2. What are the four major directions on a compass?

_____

3. _____ are used to purify water.

4. What is the bulls eye on an archery target? _____

5. How many players on a volleyball team? _____

6. The best back pack frame should have a welded fram? TRUE FALSE

7. Where should you place your hands when getting into a canoe?

A. on the gunwales
B. on the stern
C. on the bow
D. on the strut

8. What is the most important thing to remember to keep from falling out of a canoe.

A. keep low
B. stay in the center
C. don't move around
D. never kneel

9. Where does the lower hand grip a canoe paddle?

A. on the top of the handle
B. on the blade
C. below the blade
D. above the blade

10. What is the fatest way to stop a rowboat?

A. throw out the anchor
B. stop rowing
C. brake with the oars
D. turn

Trainable

1. When we go to camp we must:

   a. not do any work
   b. work along
   c. work as a team

2. For safety around the campfire we must have:

   a. an old rag
   b. pail of water
   c. nothing

3. At camp everyone must follow:

   a. the rules
   b. each other

4. For a cook fire we need:

   a. charcoal
   b. leaves
   c. old shoes

5. In laying a trail an _____ means:

   a. stop
   b. go on
   c. wrong way

6. When hiking we must:

   a. try to be first
   b. gather wood
   c. follow the leader

7. The first step to cooking a meal is:

   a. wash hands
   b. open cans
   c. settle for a sandwich

8. The first step to building a fire is:

   a. strike a match
   b. gather wood
   c. irritate your teacher

9. The best kind of fire wood is:

   a. wet wood
   b. green wood
   c. dry wood

10. A piece of camping gear you must take is:

   a. a new hat
   b. a bed roll

11. At camp it is always good to set aside some time in the day for:

   a. a fashion show
   b. quiet time
   c. complaining

12. When on a hike we must never:

   a. walk
   b. pick plants or flowers
   c. go on a bike

Educable

I. Put an X in Front of the Correct Items

1. What items does one need in order to fish?

(a) bat	(c) bait	(e) wax
(b) rain	(d) water	(f) fishing pole

2. Pick out the kinds of fish found in fresh water.

(a) bass	(c) perch	(e) trout
(b) whales	(d) sharks	(f) clam

3. Choose the items one would find on a camping trip.

(a) campfire	(c) trees	(e) school building
(b) train	(d) moss	(f) dishwasher

II. Answer the Following Questions:

1. What is the purpose of a hook on a fishing pole?

2. What is a Nature Mobile?

3. Name three objects you could put on a nature Mobile.

4. What is a Nature Hike?

5. What kinds of things would you be looking for, when you go on a Nature Hike?

6. Name the four seasons of the year.

7. How would you take a cast off an animal track, in order to study it closely?

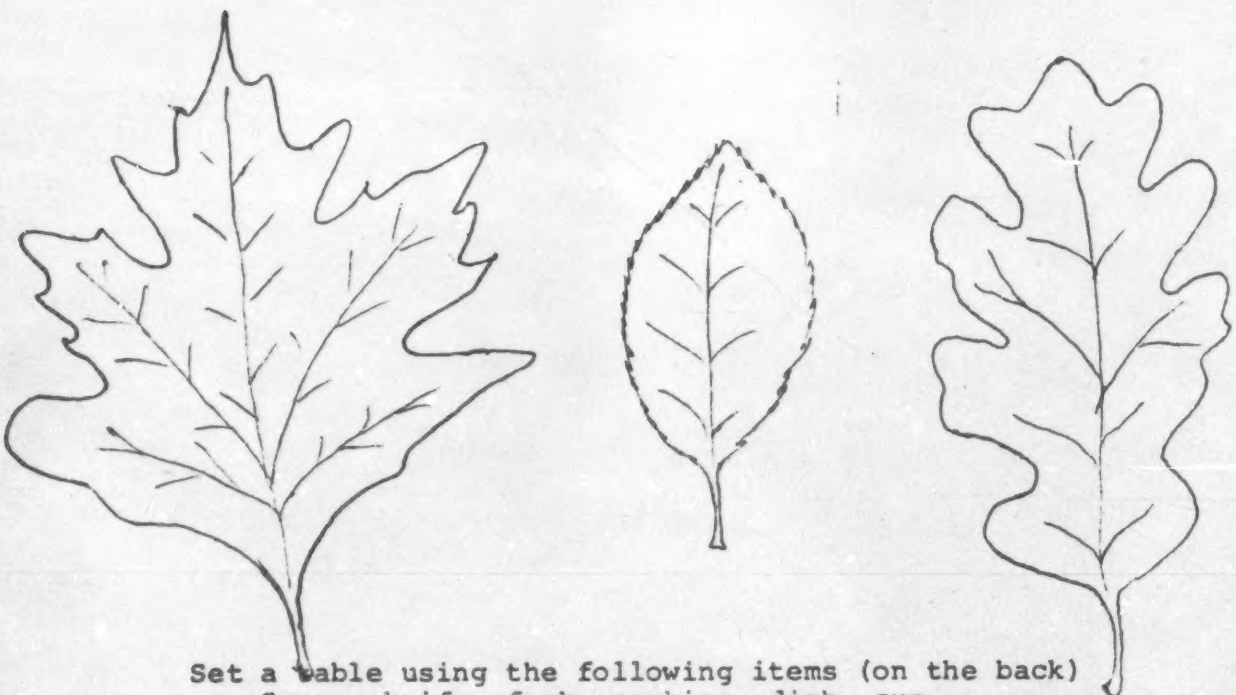
8. What kind of sounds would you hear, in the woods?

9. Name three items needed to play a baseball game.

10. What is astronomy?

11. What is a telescope, and what does it do?

III. Identify the Following:



Set a table using the following items (on the back)
Spoon, knife, fork, napkins, dish, cup.

On the back of the paper draw pictures of the following:

1. Full Moon 2. Half Moon 3. Telescope

Learning Disabled

1. In what direction does the sun rise in the morning? _____

2. What must you rub on a needle to use it for a compass? _____

3. Write the directional names in the correct spot.

south
west
east
north

4. What instrument did we make to find the directions. _____

identify the footprints from the casts and rubber "prints" showed to you.

5. _____

6. _____

6a. _____ is it the front or the back?

6b. _____ is it the front or the back?

7. _____

Match the tracks to the plaster feet. Write the letter next to the correct number.

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. What do we call this impression that is left in the rock that looks a shell or a fish?

_____

15. What material was used to make a cast of the animals footprint? ___

_____

16. Draw a picture of a tree and label its parts.

17. What season of the year is this? _____

18. Why are the leaves on the trees so small? _____

Emotionally Disturbed

1. What is the use of the river that runs through Camp Rotary?

   a. drain away the water
   b. a living place for fish and wildlife
   c. recreation for people

2. Which of the following are colors that you might find in nature at Camp Rotary?

   a. black
   b. white
   c. brown
   d. red
   e. blue
   f. green

3. Which of the following birds would you probably find at Camp Rotary in the winter?

   a. robin
   b. sparrow
   c. bluejay
   d. cardinal
   e. oriole
   f. crow

4. Which of these heavenly bodies can we see in the sky at night while at camp?

   a. Virgo
   b. Big Dipper
   c. Venus
   d. Leo the Lion
   e. Moon
   f. Orion the hunter

5. Which is the best way to steer a toboggan?

   a. pull on the ropes
   b. drag your feet
   c. lean your body

6. Which of the following should you do if someone gets injured while playing?

   a. carry the person to the dorm
   b. send someone for help
   c. pull the person to his feet
   d. leave the person where he is hurt

7. Which of these chores need to be done at <u>every</u> meal at camp?

   a. wash dishes
   b. set the table
   c. clean-up the garbage
   d. wash the tables
   e. wash your hands
   f. get chairs for everyone

8. Which of these things need to be done <u>every day</u> at camp?

   a. get firewood
   b. mop the floors
   c. clean the bathrooms
   d. hang-up wet clothes
   e. make your bed
   f. go outside

9. Which of the following things do you need to make <u>somores</u>?

   a. wooden stick
   b. stove
   c. marshmallow
   d. graham crackers
   e. candy bars
   f. dishes

10. Which of the following food groups should you have each day?

   a. bread or cereal group
   b. milk group
   c. meat group
   d. vegetable group
   e. candy group
   f. pop group

CAMP TEST

Educable

1. What temperature does frostbite start to occur? _____

2. What is the term used in skiing which is a form of stopping while going down a hill by spreading the skis apart at the back? _____

3. Can you identify most wildlife in the area by their tracks? Yes or No

4. Do you know any secrets about ice fishing: (list below)

5. Do you know any qualities that make a team work together _____

6. The shorter a downhill or alpine ski, the faster you go? True or False

7. The longer a downhill or alpine ski, the more difficult it becomes to turn? True or False

8. Skis need a "tune up" before each day's use? True or False

9. It is always necessary to ski with poles? True or False

Trainable

1. When tapping a tree for syrup you:

   a. Hit it with a stick
   b. Bore a hole in it and put a bucket under the hole
   c. Tap the tree with your fist

2. If your fingers are frost-bitten you should:

   a. put your hands in your arm pits
   b. run warm water over them
   c. rub your hands together

3. Tinder and kindling are used in fire building, they are:

   a. matches
   b. tiny pieces of branches
   c. large logs

4. When using a fire bowl you need:

   a. a bucket of water near the fire
   b. a pan to cover the flames

5. If you get lost from your group out in the woods, you should:

   a. stay where you are and call for help
   b. go out looking for your group

6. Tracking is:

   a. leaving paths to follow in the woods
   b. walking on railroad tracks

7. Buddy Burners are:

   a. tin can stoves
   b. the burners on your stove at home

8. When setting the table you use:

   a. napkins, forks, spoons, knives, glass and plates
   b. buddy burners and plates
   c. soup bowls and paper plates

9. When taking pictures you use a:

   a. Movie screen
   b. camera
   c. tape recorder

Trainable

1. Sawdust and wax makes a good fire starter.
2. Every Animal foot makes a different track.
3. If your hand or foot gets frozen you should put it in hot water.
4. A broken leg should not be walked on.
5. If you press hard on a cut it will help stop the bleeding.
6. Ice water helps a burn.
7. Boys and girls - men and women are members of the animal family.
8. A cover of snow could help keep you warm.
9. You must have a frying pan to make a foil dinner.
10. To cook food you must have some kind of heat.
11. After sledding down hill - always walk back up the middle of the hill.

CAMP TEST

Trainable

1. Circle one picture that shows at least 3 items:

   A) B) C) D)

2. A map symbol could be:

   1) found in a rock & roll group
   2) used in making Eggs McOldenburg
   3) a black rectangle

3. At the top of a good map you should find the direction:

   1) West
   2) East
   3) North
   4) South

4. Circle one picture that shows NO MORE THAN 4 items:

   A) B) C)

5. When making camp chili is it important to "brown" the beans first?

   1) Yes
   2) No

6. Where does the heat escape from the body the fastest?

   1) toes
   2) fingers
   3) head
   4) ribs

7. If your hands get frost bitten, and you put them in water, what temperature should the water be?

   1) hot
   2) cold
   3) warm
   4) Don't use water

Trainable

1. The most important rule in going through an unknown woody area is:

   a) watch for wild animals
   b) always mark your trail
   c) take a friend

2. When marking a trail put your markers:

   a) far apart
   b) close together

3. When marking a trail use something that:

   a) is bright
   b) blends in with the trees
   c) will blow away when you"ve finished

4. In swamp study we use a _____ (telescope, mirror, magnifying glass)

5. To observe swamp creatures under a microscope we use:

   a) a table
   b) a plate
   c) a glass slide

6. When shooting a bow and arrow the most important rule is:

   a) only shoot one arrow at a time
   b) don't retrieve your arrows
   c) stand next to the person shooting

7. When shooting a bow and arrow the person behind you should:

   a) hand you your next arrow
   b) keep everyone quiet
   c) watch where your arrows go

8. I learned _____ at camp.

9. I liked _____ best at camp.

Trainable

1. To start a fire use:
   1. a large log
   2. paper
2. A match can lite if it is:
   1. wet
   2. dry
3. Logs burn best if:
   1. wet
   2. dry
4. Food cooks best if placed at:
   1. center of fire
   2. at edge of fire
5. Foil dinners need:
   1. 2 minutes
   2. 20 minutes
6. To treat frost bite:
   1. rub in snow
   2. put in warm water
7. To treat a bleeding wound:
   1. wrap in a napkin
   2. in a clean cloth

Educable

1. Name 5 different vegetables.

2. Do any vegetables grow below the ground? If so, name two.

3. To grow vegetables you must plant _____.

4. Name 3 vegetables we can eat without cooking.

5. What does harvest mean?

6. If people want to eat the vegetables from their garden all year round, what can they do to preserve them?

7. Who was at the first Thanksgiving feast?

8. Who were the Pilgrims?

9. Who helped the Pilgrims plant their gardens?

10. Why were the Pilgrims thankful?

Trainable Mentally impaired

1. A "critter" is a funny name for:

   a) a cookie
   b) an animal
   c) shoes

2. To cook food, we always need:

   a) a spoon
   b) a kettle
   c) something hot (heat)

3. We need tinder, kindling, and wood to make:

   a) a fire
   b) a candle
   c) a critter cage

4. Which is farthest away:

   a) the moon
   b) Camp Rotary
   c) your home

5. To see the stars better we use:

   a) a camera
   b) a radio
   c) a telescope

6. A special doll to help tell a story is:

   a) a paper
   b) a puppy
   c) a puppet

7. Some things dissolve in water and others stay whole. True or False

8. Magnify means make smaller. True or False

9. If you get burned, the best help is to put it in cold water. True or False

10. The moon is small enough to hold in your hand. True or False

54

Trainable Mentally Impaired

1. John has frostbite on his fingers. How can you warm them?
   a) Put them in very hot water
   b) Rub them with snow
   c) Put them in warm water

2. Bill stayed out in the cold too long. He is awake. You bring him inside and wrap him in warm blankets. Then what do you do:
   a) Give him a cold bath to keep him breathing
   b) Give him something hot to drink

3. Where can we put our hands on our body to warm them?
   a) On your knees
   b) Under our armpits
   c) On your head

4. When going outdoors in the winter it is most important to dress warmly. If it is cold and wet you should wear:
   a) Shoes
   b) slippers
   c) Rubber boots

5. The small material used to start with when making fires outdoors is:
   a) Trees
   b) Wax
   c) Tinder

6. Water is always blue?
   a) True
   b) False

7. When cooking a foil dinner do you not need:
   a) a pan
   b) fire
   c) foil

8. To look closer at the moon and stars you can use:
   a) mirror
   b) telescope

9. In cutting and gathering wood for fires you should use:
   a) Broken branches lying on the ground
   b) Trees that are still growing

10. A Buddy Burner is:
    a) A tin can stove
    b) two man sled

APPENDIX C

INSTRUMENTS FOR
AFFECTIVE AND PSYCHOMOTOR DOMAINS

SUMMARY INFORMATION FORM FOR EACH
THREE-DAY OUTDOOR EDUCATION SESSION

GOAL: _____

_____

NUMBER OF CHILDREN ATTENDING: MALE _____ FEMALE _____

CLASSIFICATION OF CHILDREN: _____

SUPERVISORS	FUNCTION
Teachers _____	_____
Parents _____	_____
Students _____	_____
Others _____	_____
(Please Specify)	
_____	_____
_____	_____
_____	_____

DATES OF SESSION: _____

SCHEDULE OF ACTIVITIES:

	GOAL	NUMBER OF STUDENTS ACCOMPLISHED	NUMBER OF STUDENTS NOT ACCOMPLISHED
FIRST DAY	_____	____	____
	_____	____	____
	_____	____	____
	_____	____	____
	_____	____	____
SECOND DAY	_____	____	____
	_____	____	____
	_____	____	____
	_____	____	____
	_____	____	____
THIRD DAY	_____	____	____
	_____	____	____
	_____	____	____
	_____	____	____
	_____	____	____

ADDITIONAL OBSERVATIONS: _____

_____

_____

_____

_____

_____

_____

CHECKLIST FOR O.E.P.

GOAL: _____

_____

SPECIFIC OBJECTIVE: _____

_____

_____

RATER: (Code) _____

DATE(S): _____

OBSERVATIONS

Student Name	Sex	Successful			Partially Successful			Unsuccessful			Not Attempted		
		D_1[b]	D_2	D_3	D_1	D_2	D_3	D_1	D_2	D_3	D_1	D_2	D_3

[a] A checkmark (✓) is to be placed in the appropirate column.

[b] D represents DAY and the subscript identifies which day.

ADDITIONAL RATER OBSERVATIONS: _____

_____

_____

_____

UNEXPECTED OR UNUSUAL OCCURRENCES (SPECIFY): _____

_____

_____